

CLAIMS:

1. An optical scanning device for scanning an information layer of an optical record carrier, the information layer including a data track arranged as a series of pits and lands with transitions between the pits and lands, the device including a radiation source for generating radiation and an optical arrangement for transmitting the radiation towards the optical record carrier, and after scanning of the optical record carrier, towards a detection system, the optical arrangement generating two radiation beams respectively forming two scanning spots displaced with respect to one another on the information layer, characterized in that the optical arrangement is adapted to align the spots with respect to one another along the direction of the data track, and in that the detection system is arranged to detect variations in the reflected beams as a result of interference caused by differences in path lengths of the two radiation beams, which differences indicate a transition between a pit and a land in the data track.
2. An optical scanning device according to claim 1, in which the optical arrangement includes an optical element, wherein the radiation source forms a single radiation beam which is split into two secondary radiation beams by the optical element.
3. An optical scanning device according to claim 2, in which the optical element comprises a diffraction grating.
4. An optical scanning device according to claim 3, in which the diffraction grating introduces a phase difference between the two secondary radiation beams.
5. An optical scanning device according to claim 4, in which the diffraction grating generates a phase difference of π between the two secondary radiation beams.
6. An optical scanning device according to any of claims 2 to 5, in which the optical arrangement is such that the two secondary radiation beams are transmitted from the information layer to the detection system without being incident on the optical element.

7. An optical scanning device according to claim 2, in which the optical element comprises a birefringent material.
- 5 8. An optical scanning device according to claim 7, in which the optical element comprises a Wollaston prism.
9. An optical scanning device according to any preceding claim, in which the detection system is adapted to generate an electrical signal, said electrical signal comprising a
10 series of peaks.
10. An optical scanning device according to claim 9, wherein each said peak is representative of a transition between a land and a pit in the data track.
- 15 11. An optical scanning device according to any preceding claim, the detection system includes a photodetector, said two beams being combined prior to the position of the photodetector.